

WHAT IS CLAIMED IS:

- 1 1. A method comprising the steps of:
 - 2 receiving a first set of pixel values representing a portion of a first image frame at a first
 - 3 resolution, wherein the first set of pixel values represent a first pattern with a first
 - 4 rate of change;
 - 5 generating a second set of pixel values related to the first set of pixel values to represent
 - 6 the first pattern with a second rate of change, wherein the second pattern is related
 - 7 to the first pattern and the second rate of change is less than the first;
 - 8 re-sampling the second set of pixel values to generate a portion of a second image frame,
 - 9 wherein the second image frame represents the first image frame at a second
 - 10 resolution, different from the first resolution.
- 11 2. The method as in Claim 1, wherein the step of generating a second set of pixel values
- 12 includes replicating pixel values from the first set of pixel values to generate the second
- 13 set of pixel values.
- 14 3. The method as in Claim 1, wherein the portion of the second image frame includes a set
- 15 of image pixels representing at least a portion of a line of the first image frame.
- 16 4. The method as in Claim 1, wherein the first pattern includes a portion of text.
- 17 5. The method as in Claim 1, wherein re-sampling includes bi-linear re-sampling.
- 18 6. The method as in Claim 1, wherein the step of re-sampling includes multi-tap filtering.
- 19 7. The method as in Claim 1, wherein the second resolution is greater than the first
- 20 resolution.

- 1 8. The method as in Claim 1, wherein the step of re-sampling includes generating alpha
- 2 values for interpolating the portion of the second image from the second set of pixels.

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1 9. A computer readable medium tangibly embodying a program of instructions, said
2 program of instructions comprising instructions to:
3 receive a first set of pixel values representing a portion of a first image frame at a first
4 resolution, wherein the first set of pixel values represent a first pattern with a first
5 rate of change;
6 generating a second set of pixel values related to the first set of pixel values to represent
7 the first pattern with a second rate of change, wherein the second pattern is related
8 to the first pattern and the second rate of change is less than the first; and
9 re-sampling the second set of pixel values to generate a portion of a second image frame,
10 wherein the second image frame represents the first image frame at a second
resolution.

10 10. The method as in Claim 9, wherein generating includes replicating pixel values from the
first set of pixel values to generate the second set of pixel values.

11 11. The method as in Claim 9, wherein the portion of the second image frame includes a set
of image pixels representing at least a portion of a line of the first image frame.

1 12. The method as in Claim 9, wherein the first pattern includes a portion of text.

1 13. The method as in Claim 9, wherein re-sampling includes bi-linear re-sampling.

1 14. The method as in Claim 9, wherein the step of re-sampling includes multi-tap filtering.

1 15. The method as in Claim 9, wherein the second resolution is greater than the first
2 resolution.

- 1 16. The method as in Claim 9, wherein the step of re-sampling includes generating alpha
- 2 values for interpolating the portion of the second image from the second set of pixels.

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1 17. A system comprising:
2 a first input to receive a first set of pixel values of a first image frame at a first resolution,
3 wherein the first set of pixel values represent a first pattern with a first rate of
4 change;
5 a replication unit to replicate pixel values from the first set of pixel values to generate a
6 second set of pixel values, wherein the second set of pixel values represent the
7 first pattern with a second rate of change, less than the first rate of change;
8 a re-sampler to re-sample the second set of pixel values to generate a portion of a second
9 image frame, wherein the second image frame represents the first image frame at
10 a second resolution.

1 18. The system as in Claim 17, wherein said replication unit performs replicates pixel values
2 according to an integer scale value.

1 19. The system as in Claim 17, wherein said first input includes a set of latches to store said
2 first set of pixel values.

1 20. The system as in Claim 17, wherein said re-sampler includes a multi-tap filter to
2 interpolate said second image frame from said second set of pixel values.

1 21. The system as in Claim 20, wherein interpolation includes generating alpha values to
2 represent relative positions of pixels in the second image frame in relation to the pixels of
3 the second set of pixel values.

1 22. The system as in Claim 17, wherein said second resolution is greater than said first
2 resolution.

1 23. The system as in Claim 17, further including a pixelated display to display the second
2 image frame, wherein a display resolution associated with the pixelated display is
3 equivalent to the second resolution.

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1 24. A method comprising the steps of:
2 receiving an absolute alpha value, wherein the absolute alpha value represents a position,
3 within a first range of alpha values, relative to a first source pixel;
4 amplifying the absolute alpha value by a factor to generate an amplified alpha value; and
5 normalizing the amplified alpha value to generate a normalized alpha value so that the
6 normalized alpha value represents a position relative to the first range of alpha
7 values.

1 25. The method as in Claim 24, further including the step of:
2 subtracting a first value from the absolute alpha value before the step of amplifying the
3 alpha value by a factor, wherein negative values of the alpha value, after
4 subtracting the first value, indicate closer proximity of the re-sampled pixel to the
5 first source pixel than a second source pixel; and
6 further wherein the step of normalizing the amplified alpha values includes:
7 clipping the amplified alpha value within a subset of alpha values to generate a
8 clipped alpha value, wherein amplified alpha values outside of the subset
9 of alpha values are set to a nearest limit of the subset of alpha values; and
10 adding the first value to the clipped alpha value to generate the normalized alpha
value.

1 26. The method as in Claim 25, wherein the first value is approximately 0.5.

1 27. The method as in Claim 26, wherein the subset of alpha values include the range of alpha
2 values from -0.5 to approximately +0.5.

1 28. The method as in Claim 24, further including the step of applying a first representation of
2 the modified alpha value to a value associated with the first source pixel and applying a
3 second representation of the modified alpha value to a value associated with a second
4 source pixel to generate a value for the re-sampled pixel.

1 29. The method as in Claim 28, wherein the second representation of the modified alpha
2 value is the modified alpha value and the first representation of the modified alpha value
3 is the difference between one and the modified alpha value.

1 30. The method as in Claim 28, wherein applying includes multiplying.

1 31. The method as in Claim 24, wherein steps in position away from the first source pixel are
2 measured by values equivalent to an inverse of a scale ratio to be performed in generating
3 the re-sampled pixel.

1 32. The method as in Claim 24, wherein the first range includes a range of alpha values from
2 zero to one.

1 33. The method as in Claim 24, wherein the first source pixel is the nearest left pixel to the
2 relative position of the re-sampled pixel and the second source pixel is the nearest right
3 pixel to the relative position of the re-sampled pixel.

1 34. The method as in Claim 24, wherein the steps are performed through the use of a multi-
2 tap filter.

1 35. The method as in Claim 34, wherein the multi-tap filter further includes a two-tap filter.

1 36. The method as in Claim 24, wherein the first source pixel includes an image pixel and the
2 normalized alpha value is used to generate a scaled image pixel associated with the first
3 source pixel.

1 37. The method as in Claim 24, wherein the steps are performed as part of operations within an
2 image scalar.

1 38. A system comprising:
2 a first latch to store a first pixel value, said first latch including:
3 an input coupled to an output of a pixel source to receive said first pixel value
4 from a first set of pixel values;
5 an output coupled to:
6 an input of a second latch; and
7 a first input of a first multiplier;
8 said second latch to store a second pixel value, said second latch including:
9 an input to receive said second pixel value from said first latch;
10 an output coupled to a first input of a second multiplier;
11 said first multiplier to multiply said first pixel value by a first modified alpha coefficient
12 and generate a first product, said first multiplier including:
13 said first input coupled to said output of said first latch;
14 a second input coupled to a first output of an alpha modifier to receive said first
15 modified alpha coefficient;
16 an output coupled to a first input of an adder;
17 said second multiplier to multiply said second pixel value by a second modified alpha
18 coefficient to generate a second product, said second multiplier including:
19 said first input coupled to said output of said second port;
20 a second input coupled to a second output of said alpha modifier to receive said
21 second modified alpha coefficient;
22 an output coupled to a second input of said adder;
23 an alpha coefficient modifier to limit absolute alpha coefficients proximate to an edge of
24 a range associated with the absolute alpha coefficients to the edge, said absolute
25 alpha coefficients proximate to an edge to be used in said first multiplier and said
26 second multiplier to represent replications of pixels from said pixel source;
27 a pixel source to provide said first set of pixel values of a first image frame, wherein said
28 set of pixel values represent a pattern at a first resolution;
29 an accumulator to generate said absolute alpha coefficients, wherein said alpha
30 coefficients are representative of a relative distance between an interpolated pixel
31 and a first pixel associated with said first pixel value; and

32 said adder to combine said first product and said second product to generate an
33 interpolated pixel value, said adder including;
34 said first input to receive said first product;
35 said second input to receive said second product; and
36 an output to provide said interpolated pixel value, wherein said interpolated value
37 represents a pixel value of second set of pixel values, wherein said second
38 set of pixel values represent said pattern at a second resolution.

1 39. The system as in Claim 38, wherein said second resolution is greater than 1.5 times the
2 resolution of said first resolution.

40. The system as in Claim 38, further including a pixelated display to display pixels associated with said second set of pixel values.

1 41. A method comprising:
2 receiving an absolute blend value, between zero and one, associated with a relative
3 distance between a first pixel and a second pixel;
4 subtracting 0.5 from the absolute blend value to generate a shifted blend value;
5 multiplying the shifted blend value by a factor to generate an expanded value;
6 clipping the expanded value between -0.5 to +0.5 to generate a fixed value;
7 adding 0.5 to the fixed value to generate a modified blend value;
8 applying the modified blend value to the value of the first pixel to generate a first portion
9 of a new pixel value;
10 applying a difference between one and the modified blend value to the second pixel to
 generate a second portion of the new pixel value; and
 combining the first portion of the new pixel value and the second portion of the pixel
 value to generate the new pixel.

1 42. The method as in Claim 41, wherein the absolute blend value is closer to zero than one to
2 indicate closer proximity to the left pixel than the right pixel.